Testing Strengths-Based Interventions: A Preliminary Study on the Effectiveness of a Program Targeting Wisdom and Knowledge Virtues for Online Learning Readiness Among Students

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ABSTRACT
The aim of this study was to analyze the influence of character strength on online learning readiness for students with different majors at Universitas Putra Indonesia YPTK Padang. It was conducted using a VIA-IS questionnaire developed by Peterson and Seligman, while students' readiness for online learning was assessed through the use of TSROL questionnaire developed by Hitendra Pillay, Kym Irving, and Megan Nada. One-way analysis of variance (ANOVA) was used for data analysis. The results showed that there were significant differences in the readiness of students in online learning in each major and that there was none in the strength of students' character between the existing majors.

Keywords: Character strength, online learning, e-learning, student readiness

1. INTRODUCTION

Technological and communication advancement and development (ICT) have formally and informally impacted all sectors. This has created a big challenge for the education sector being a place where human resources are created and this has resulted in the use of technology and information systems to improve the quality of students. An example of this is an online learning model known as e-learning.

According to Allen (2013), it is created with the aim of using an electronic or computer system to support the learning process. It can also be said to be one of the ways of applying ICT in education to deliver learning content or electronic learning experience through the use of computers and computer-based media. Currently, more than a thousand institutions in 50 countries of the world are using e-learning to support learning activities (Bhuasiri et.al, 2012).

However, in reality, not all institutions that use e-learning get results that are expected (Sun, 2008). This shows that there are several limitations with the use of the method such as lack of interaction between teachers and students and low cultivation of moral values and character in the teaching and learning process. Besides that, investment is needed to provide supporting facilities

and infrastructures such as computers, networks, internet connections, other electronic media needed as well as reliable human resources (HR) to implement all operations and maintenance.

The application of e-learning is not just to upload teaching material or to present learning content but to change the learning process paradigm. However, there is a need for the readiness of the institution as well as the students and other components in online learning (E-learning Readiness (ELR)). This is defined as the mental or physical readiness of an organization or individual for a learning experience (Borotis & Poulymenakou, 2004). It is important because implementing e-learning is often faced with a variety of obstacles (barriers) such as resistance, computer literacy, limited human resources, infrastructure, and organizational culture (Mungania, 2003). In addition, the ELR Model is designed to simplify the process of obtaining basic information needed to develop e-learning. Therefore, learning readiness online must also be the main concern of the organization before deciding to implement e-learning.

Many research findings show that readiness for online learning has not been maximized. Kaur & Zoraini (2004) reported that only one-third of students feel ready for e-learning at the Universitas Terbuka Malaysia. This is

supported by Hung's, ML et al. (2010) which examined the readiness of online learning participants with 1051 students in five subjects in Taiwan, he concluded that there was high students' readiness for the category of computer/internet self-efficacy, motivation for learning and online communication self-efficacy but low for learner control and self-directed learning.

Another factor that determines the success of online learning or e-learning implementation is the strength of character. It can be defined as a form of value or potential possessed by someone or learner which support the implementation of learning activities. According to Peterson and Seligman (2004), it is the psychological elements which include processes and mechanisms, are provide a defined virtue. It can also be defined as the mental processes that help a person to think and behave in ways that can improve the quality of their work and life experiences, and increase their interest in the environment (McCullough & Snyder, 2000, in Litman & Davidovitch, 2010).

Through strengths of character such as interests, talents, and motivation, students will have the ability to understand and follow the online learning model. In other words, it has the ability to direct all attitudes and behavior of students toward online learning readiness. Therefore, it is also considered a reflection of one's potential to achieve personal welfare and contribute to their workplace and environment (Peterson & Seligman, 2004).

Therefore, this study was aimed at finding and analyzing the differences in online learning readiness and the strength of character possessed by students based on Faculty or major in Universitas Putra Indonesia.

2. METHOD

The population of this study was 2000 students, and the samples taken were 324 students from the Faculties of Education, Computer Science, Design and Communication Visual, and Psychology of Universitas Putra Indonesia YPTK Padang. The data was collected by distributing questionnaire designed with 4 scales Liker using Google Form.

This research consisted of 2 variables, online learning readiness, and strength of character. Online learning readiness variable was measured using a questionnaire developed by Pillay, & Tones (2007) with indicators such as technical skills, self-efficacy on computers, learning preferences and attitudes toward computers consisting of 18 statement items.

Furthermore, the strength of the character variable is the picture or self-potential inherent in the students to support online learning readiness. This variable was measured by using a questionnaire developed by Peterson and Seligman (2004) with indicators including curiosity, love of learning, openness of mind, creativity, and perspective. Hypothesis testing was conducted using One-Way Test ANOVA. The initial stage was preceded by instrument test (Validity and Reliability), followed by requirements test namely normality and homogeneity test. They were all conducted through the use of SPSS 23 program.

3. RESULT AND DISCUSSIONS

Based on the data collection obtained the characteristics of the respondents are as follows:

Table 1. Characteristics of Respondents

No	Faculty	Amount	%
1	*Teaching and Education Faculty (FKIP)*	20	6,2
2	*Faculty of Computer Science*	161	49,7
3	*Faculty of Visual Communication Design (DKV)*	56	17,3
4	*Faculty of Psychology*	87	26,9

The table shows that from the 324 students sampled, Faculty of Computer Science had the highest number of students with 161 people or 49.7%, followed by Psychology, DKV, and FKIP with 26.6%, 17.3%, and 6.2% respectively. It is important to point out that all of them are engaged in *e-learning*.

The results validity test for online learning readiness and character strength variables can be seen in Tables 2 and 3:

Table 2. Test Validity of Online Learning Readiness Variables

Item	Corrected Item-Total Correlation	Information	Item	Corrected Item-Total Correlation	Information
KTT1	0.577	Valid	EDK3	0.598	Valid
KTT2	0.552	Valid	EDK4	0.611	Valid
KTT3	0.619	Valid	PB1	0.207	Invalid
KTT4	0.660	Valid	PB2	0.393	Valid
KTT5	0.493	Valid	PB3	0.125	Invalid
KTT6	0.569	Valid	STK1	0.535	Valid
KTT7	0.644	Valid	STK2	0.371	Valid
EDK1	0.342	Invalid	STK3	0.411	Valid
EDK2	0.539	Valid	STK4	0.424	Valid

The initial results of the tests revealed that of the 18 statement items developed for the online learning readiness variable as much as 3 were declared invalid because they have a small *corrected item-total correlation value* of 0.367 (Idris, 2008). The invalid items were removed and the model was re-tested and it was found that all 15 items remaining are valid, thus, the online learning readiness variable was represented by 15 statement items for further testing.

The 50 statements developed for the character strength variables were tested and the result is Table 3:

Table 3. Test Validity of Strength Character Variable

Item	Corrected Item-Total Correlation	Information	Item	Corrected Item-Total Correlation	Information
CRT1	0.326	Invalid	OMN6	0.572	Valid
CRT2	0.479	Valid	OMN7	0.402	Valid
CRT3	0.494	Valid	OMN8	0.446	Valid
CRT4	0.312	Invalid	OMN9	0.436	Valid
CRT5	0.509	Valid	OMN10	0.350	Invalid
CRT6	0.488	Valid	CTY1	0.403	Valid
CRT7	0.504	Valid	CTY2	0.355	Invalid
CRT8	0.360	Invalid	CTY3	0.425	Valid
CRT9	0.521	Valid	CTY4	0.328	Invalid
CRT10	0.434	Valid	CTY5	0.503	Valid
LOL1	0.365	Invalid	CTY6	0.573	Valid
LOL2	0.426	Valid	CTY7	0.453	Valid
LOL3	0.280	Invalid	CTY8	0.436	Valid
LOL4	0.408	Valid	CTY9	0.446	Valid
LOL5	0.476	Valid	CTY10	0.563	Valid
LOL6	0.611	Valid	PPT1	0.372	Valid
LOL7	0.416	Valid	PPT2	0.379	Valid
LOL8	0.358	Invalid	PPT3	0.334	Invalid
LOL9	0.475	Valid	PPT4	0.424	Valid
LOL10	0.460	Valid	PPT5	0.453	Valid
OMN1	0.375	Valid	PPT6	0.545	Valid
OMN2	0.475	Valid	PPT7	0.349	Invalid
OMN3	0.409	Valid	PPT8	0.500	Valid
OMN4	0.471	Valid	PPT9	0.382	Valid
OMN5	0.185	Invalid	PPT10	0.317	Invalid

The initial results of the tests revealed that of the 50 statement items developed for the variable as much as 13 were declared invalid because they have a small *corrected item-total correlation value* of 0.367 (Idris, 2008).). The 13 items were removed and after a re-test, another 4 was found to be invalid. These were also removed and after another re-tested of the remaining items, they were all valid. Thus, the online character strength variable was represented by 15 statement items for further testing.

The result of the reliability test for both variables is as shown in the table below:

Table 4. Test Validity of Reliability

Variable	Cronbach's Alpha	Note
Online Learning Readiness	0,914	*Reliable*
Character Strength	0,880	*Reliable*

The table reveals that the two variables are reliable because their *Cronbach alphas* are greater than 0.70 (Idris, 2008).

The result of the analysis conducted using One Way ANOVA on the hypothesis "there are differences in online learning readiness students between faculties at Universitas Putra Indonesia YPTK Padang" can be seen in the following table:

Table 5. Online Learning Readiness

Online Learning Readiness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1277.475	3	425.825	11.985	.000
Within Groups	11369.077	320	35.528		
Total	12646.552	323			

Test results show that the value of F is 11,985 with a significant level of 0.000. When compared with the alpha value of error rejecting data at 0.05, it is smaller or 0.000 <0.005. Thus, it can be said that there are significant differences in online learning readiness of students between the faculties. Therefore, the hypothesis was accepted.

Furthermore, *multiple comparison*s with the Tukey HSD method was used to check the differences in online learning readiness between students from each faculty, the result is as shown Table 6.

Based on the Table 6, there are generally significant differences in online learning readiness of students in each of the faculties. This is caused by the differences in existing disciplines and low understanding or interaction of students with information technology in *e-learning*. This can be seen from indicators such as technical skills, self-efficacy, learning preferences and attitudes toward computers.

Table 6. *Multiple Comparisons – Tukey HSD*

Multiple Comparisons

Dependent Variable: Online Learning Readiness
Tukey HSD

(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.
Teaching and Education Faculty (FKIP)	Faculty of Computer Science	3.78075*	1.41318	.039
	Faculty of Visual Communication Design (DKV)	1.52143	1.55269	.761
	Faculty of Psychology	6.64253*	1.47810	.000
Faculty of Computer Science	Teaching and Education Faculty (FKIP)	-3.78075*	1.41318	.039
	Faculty of Visual Communication Design (DKV)	-2.25932	.92472	.071
	Faculty of Psychology	2.86178*	.79312	.002
Faculty of Visual Communication Design (DKV)	Teaching and Education Faculty (FKIP)	-1.52143	1.55269	.761
	Faculty of Computer Science	2.25932	.92472	.071
	Faculty of Psychology	5.12110*	1.02118	.000
Faculty of Psychology	Teaching and Education Faculty (FKIP)	-6.64253*	1.47810	.000
	Faculty of Computer Science	-2.86178*	.79312	.002
	Faculty of Visual Communication Design (DKV)	-5.12110*	1.02118	.000

*. The mean difference is significant at the .05 level.

These findings are in line with the research conducted by Kaur & Zoraini (2004) and Hung's, ML *et al.* (2010). Therefore, students must be prepared with the skills needed to support online learning readiness.

Furthermore, the significant differences in the strength of character possessed by the students can be seen in the following table:

Table 7. Character Strength

Character Strength

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	267.719	3	89.240	.759	.518
Within Groups	37641.500	320	117.630		
Total	37909.219	323			

The result shows the F value to be 0.759 at a significant level of 0.518. When compared with the alpha value of error rejecting data at 0.05, it is much greater or 0.518> 0.005. It can be concluded that there is no significant difference in character strength with all the indicators. Therefore, the hypothesis was rejected.

Furthermore, *multiple comparison*s with the Tukey HSD method was used to check the differences in character strength between students from each faculty, the result is as shown Table 8.

Table 8. *Multiple Comparisons - Tukey HSD*

Dependent Variable: Character Strength
Tukey HSD

(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.
Teaching and Education Faculty (FKIP)	Faculty of Computer Science	3.84720	2.57140	.441
	Faculty of Visual Communication Design (DKV)	3.73929	2.82525	.549
	Faculty of Psychology	3.53793	2.68953	.554
Faculty of Computer Science	Teaching and Education Faculty (FKIP)	-3.84720	2.57140	.441
	Faculty of Visual Communication Design (DKV)	-.10792	1.68260	1.000
	Faculty of Psychology	-.30927	1.44315	.997
Faculty of Visual Communication Design (DKV)	Teaching and Education Faculty (FKIP)	-3.73929	2.82525	.549
	Faculty of Computer Science	.10792	1.68260	1.000
	Faculty of Psychology	-.20135	1.85812	1.000
Faculty of Psychology	Teaching and Education Faculty (FKIP)	-3.53793	2.68953	.554
	Faculty of Computer Science	.30927	1.44315	.997
	Faculty of Visual Communication Design (DKV)	.20135	1.85812	1.000

The results show that generally there is no significant difference in character strength of students between the faculties. Through the application of 12 YPTK UPI Principles of the university, the strength of character can have a good impact on the overall character of the students and this will indirectly affect their behavior and attitudes towards online learning. However, other indicators such as curiosity, love of learning, openness of mind, creativity, and perspective were found to be equally shared.

These findings are different from those of Hung's, ML *et al.* (2010) who found high students' readiness for the category of computer/internet self-efficacy, the motivation for learning and online communication self-efficacy but low for learner control and self-directed learning.

4. CONCLUSIONS

It was found that generally there are significant differences in the level of online learning readiness of students who take *E-learning* in each faculty at Universitas of Putra Indonesia YPTK Padang while in terms of the strength of character possessed by them, there is no significant difference or it can be said that they all possess similar character strength in participating in online learning.

REFERENCES

[1] Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Sloan Consortium. PO Box 1238, Newburyport, MA 01950.

[2] Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, *58*(2), 843-855.

[3] Borotis, S., & Poulymenakou, A. (2004). E-learning readiness components: Key issues to consider before adopting e-learning interventions. In *E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 1622-1629). Association for the Advancement of Computing in Education (AACE).

[4] Hung, M. L., Chou, C., Chen, C. H., & Own, Z. Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education*, *55*(3), 1080-1090.

[5] Kaur, K., & Zoraini Wati, A. (2004). An assessment of e-learning readiness at Open University Malaysia. -, 1017-1022.

[6] Litman-Ovadia, H., & Davidovitch, N. (2010). Effects of congruence and character-strength deployment on work adjustment and well-being. *International Journal of Business and Social Science*, *1*(3).

[7] McCullough, M. E., & Snyder, C. R. (2000). Classical sources of human strength: Revisiting an old home and building a new one. *Journal of Social and Clinical Psychology*, *19*(1), 1-10.

[8] Mungania, P. (2003). The seven e-learning barriers facing employees. *The Masie Centre*.

[9] Park, N., Peterson, C., & Seligman, M. E. (2004). Strengths of character and well-being. *Journal of social and Clinical Psychology*, *23*(5), 603-619.

[10] Pillay, H., Irving, K., & Tones, M. (2007). Validation of the diagnostic tool for assessing tertiary students' readiness for online learning. *High Education Research & Development*, *26*(2), 217-234.

[11] Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & education*, *50*(4), 1183-1202.

5. APPENDIX

Tests of Normality

	Faculty	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
Online Learning Readiness	Teaching and Education Faculty (FKIP)	.129	20	.200*
	Faculty of Computer Science	.108	161	.073
	Faculty of Visual Communication Design (DKV)	.112	56	.078
	Faculty of Psychology	.092	87	.069
Character Strength	Teaching and Education Faculty (FKIP)	.139	20	.200*
	Faculty of Computer Science	.097	161	.070
	Faculty of Visual Communication Design (DKV)	.074	56	.200*
	Faculty of Psychology	.075	87	.200*

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Oneway

Descriptives

Online Learning Readiness

	N	Mean	Std. Deviation	Minimum	Maximum
Teaching and Education Faculty (FKIP)	20	47.7000	5.66708	39.00	56.00
Faculty of Computer Science	161	43.9193	5.74997	31.00	60.00
Faculty of Visual Communication Design (DKV)	56	46.1786	6.20002	36.00	58.00
Faculty of Psychology	87	41.0575	6.24566	25.00	60.00
Total	324	43.7747	6.25727	25.00	60.00

Test of Homogeneity of Variances

Online Learning Readiness

Levene Statistic	df1	df2	Sig.
.517	3	320	.671

Online Learning Readiness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1277.475	3	425.825	11.985	.000
Within Groups	11369.077	320	35.528		
Total	12646.552	323			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Online Learning Readiness

Tukey HSD

(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.
Teaching and Education Faculty (FKIP)	Faculty of Computer Science	3.78075*	1.41318	.039
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Faculty of Psychology	Teaching and Education Faculty (FKIP)	-6.64253*	1.47810	.000
	Faculty of Computer Science	-2.86178*	.79312	.002
	Faculty of Visual Communication Design (DKV)	-5.12110*	1.02118	.000

*. The mean difference is significant at the .05 level.

One way

Descriptives

Character Strength

	N	Mean	Std. Deviation	Minimum	Maximum
Teaching and Education Faculty (FKIP)	20	101.4000	9.20183	86.00	124.00
Faculty of Computer Science	161	97.5528	11.15510	68.00	132.00
Faculty of Visual Communication Design (DKV)	56	97.6607	12.35722	69.00	129.00
Faculty of Psychology	87	97.8621	9.47723	80.00	130.00
Total	324	97.8920	10.83356	68.00	132.00

Test of Homogeneity of Variances

Character Strength

Levene Statistic	df1	df2	Sig.
1.807	3	320	.146

Character Strength

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	267.719	3	89.240	.759	.518
Within Groups	37641.500	320	117.630		
Total	37909.219	323			

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(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.
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